

Fig. 1A

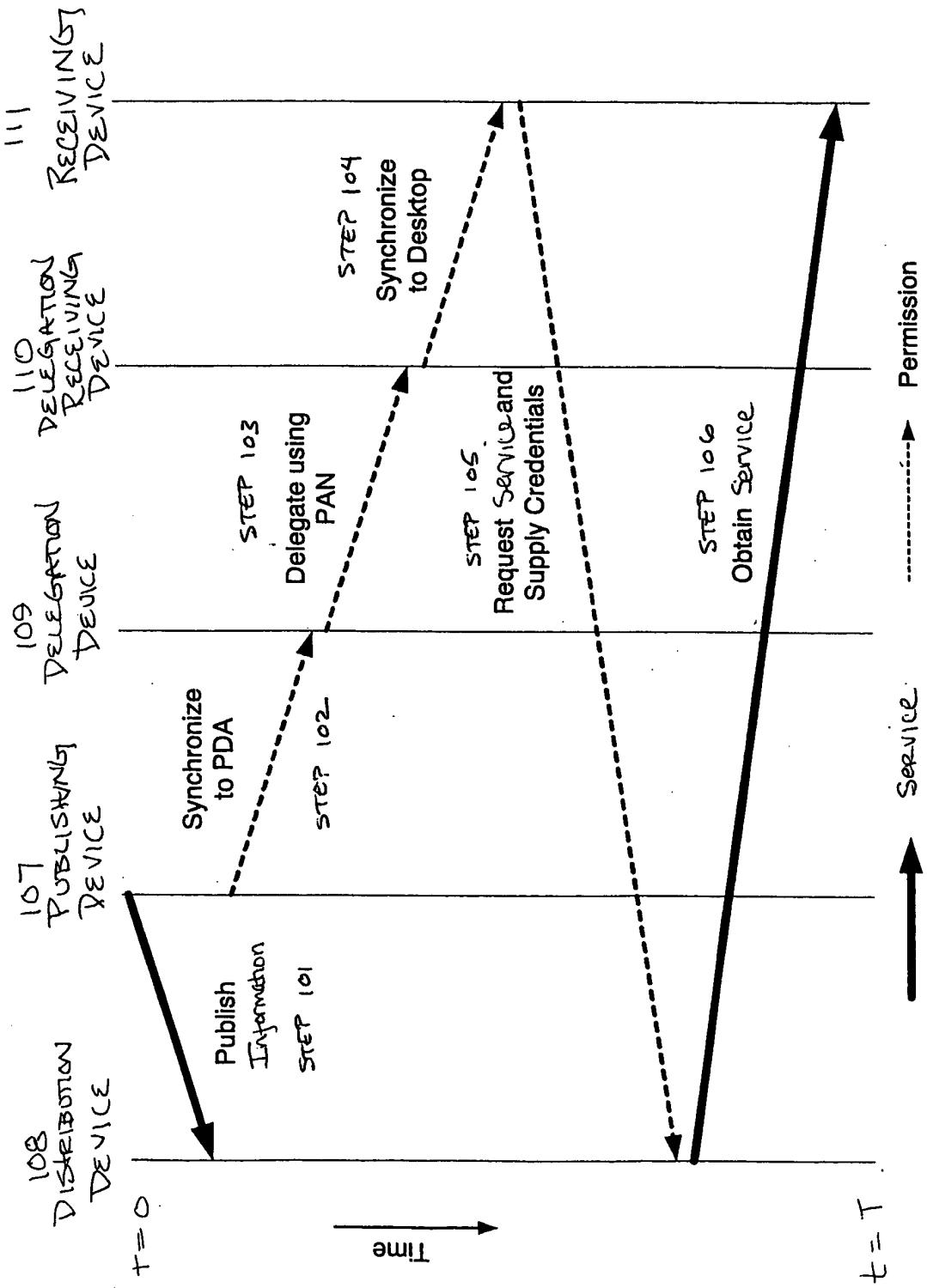
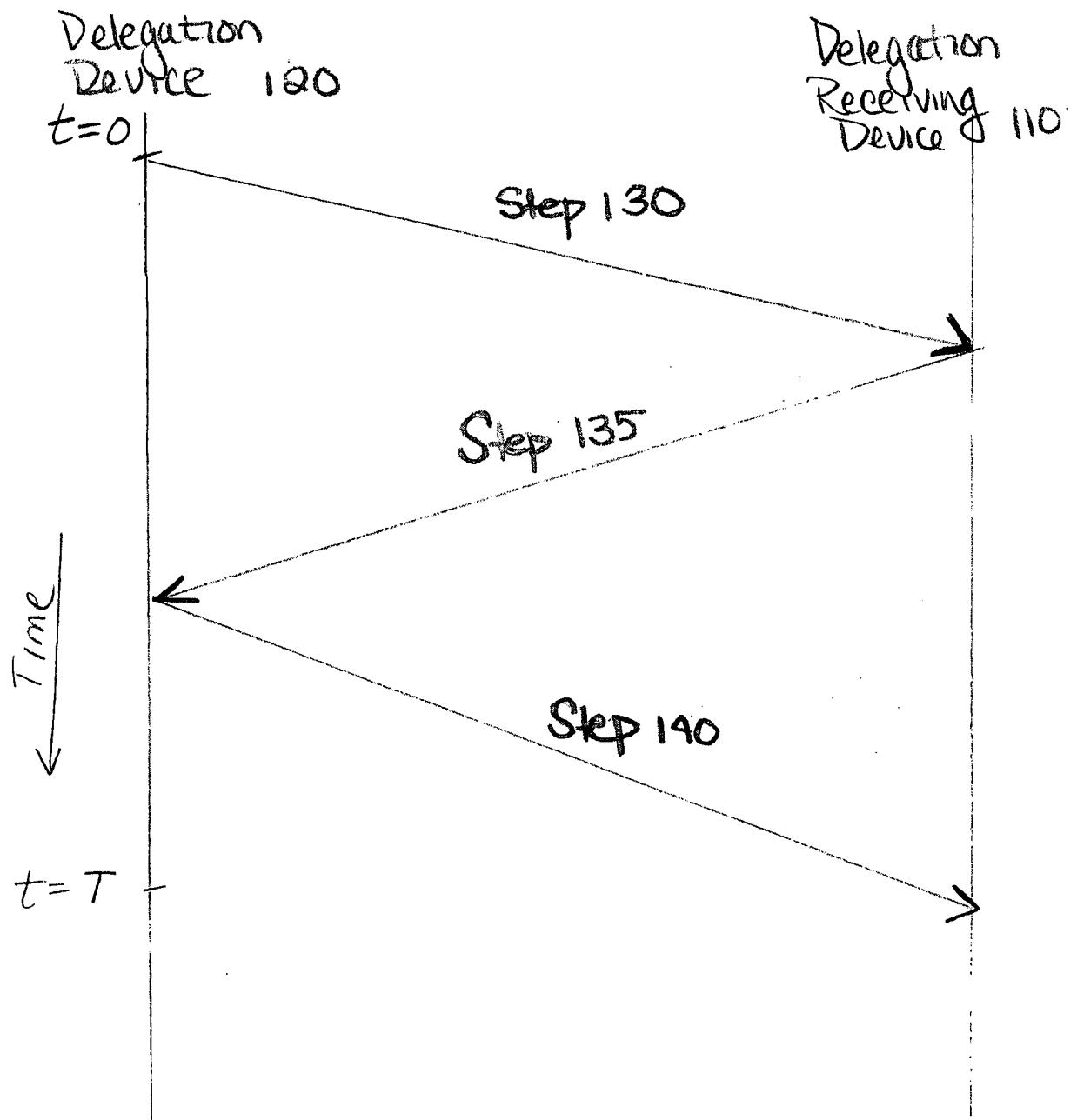


FIG. 1B



Data Structure Definitions in ASN.1

```
permissionChain ::= SEQUENCE OF permissionLink

permissionLink ::= SEQUENCE {
  permissionLinkComponent permissionLinkComponent,
  Signature OCTET STRING
}

permissionLinkComponent ::= SEQUENCE {
  Name OCTET STRING,
  Uri OCTET STRING,
  Description OCTET STRING,
  Note OCTET STRING,
  Version INTEGER,
  Src_p INTEGER,
  Src_q INTEGER,
  Src_g INTEGER,
  Src_pub INTEGER,
  Src_x509cert OCTET STRING,
  Src_email OCTET STRING,
  Subj_p INTEGER,
  Subj_q INTEGER,
  Subj_g INTEGER,
  Subj_pub INTEGER,
  Subj_x509cert OCTET STRING,
  Subj_email OCTET STRING,
  Delegate BOOLEAN,
  Read BOOLEAN,
  Write BOOLEAN,
  validFrom GeneralizedTime,
  validTo GeneralizedTime
}
```

FIG. 1C

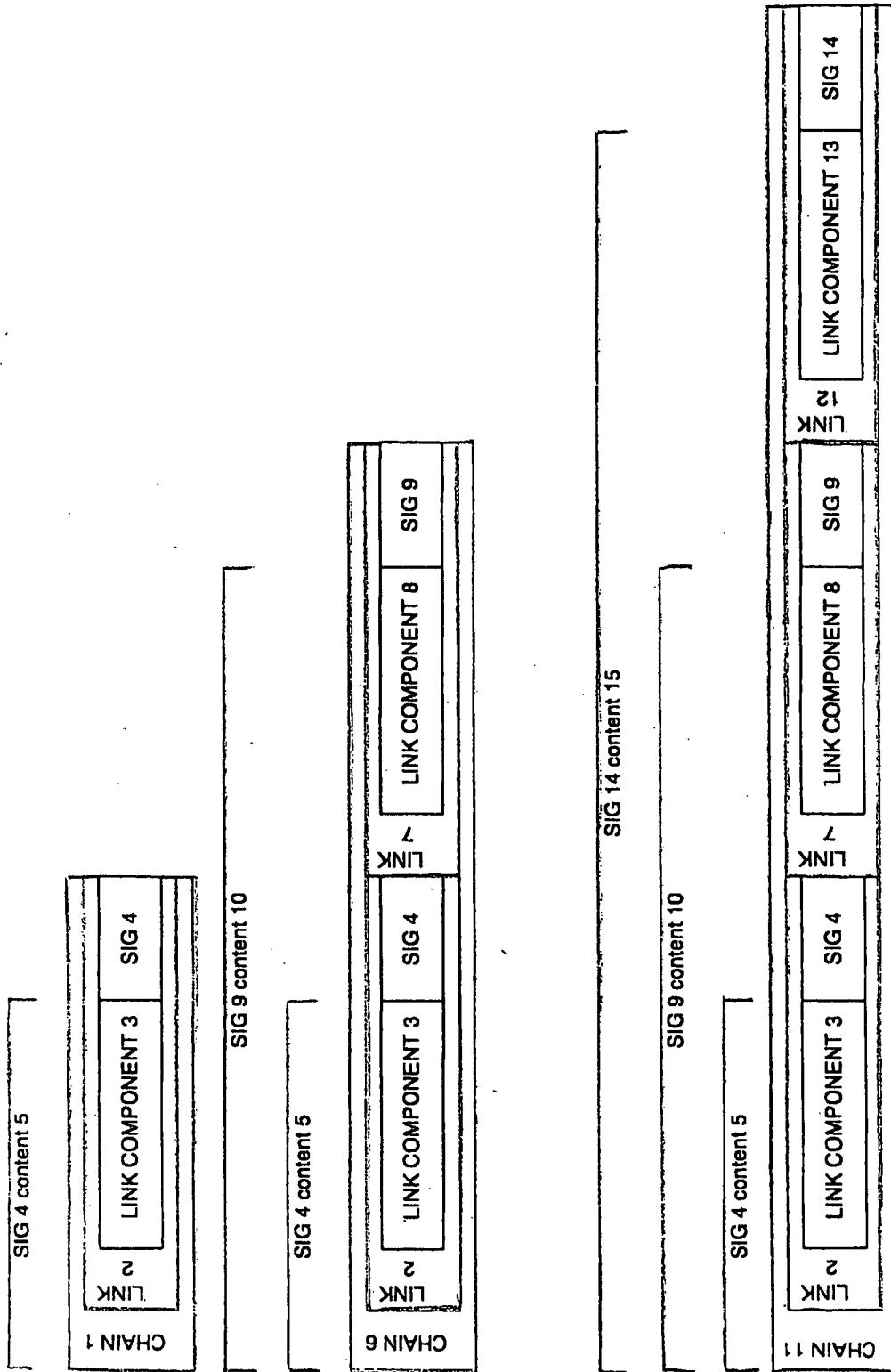


Fig. 1-D

System Overview

FIG.2A

200

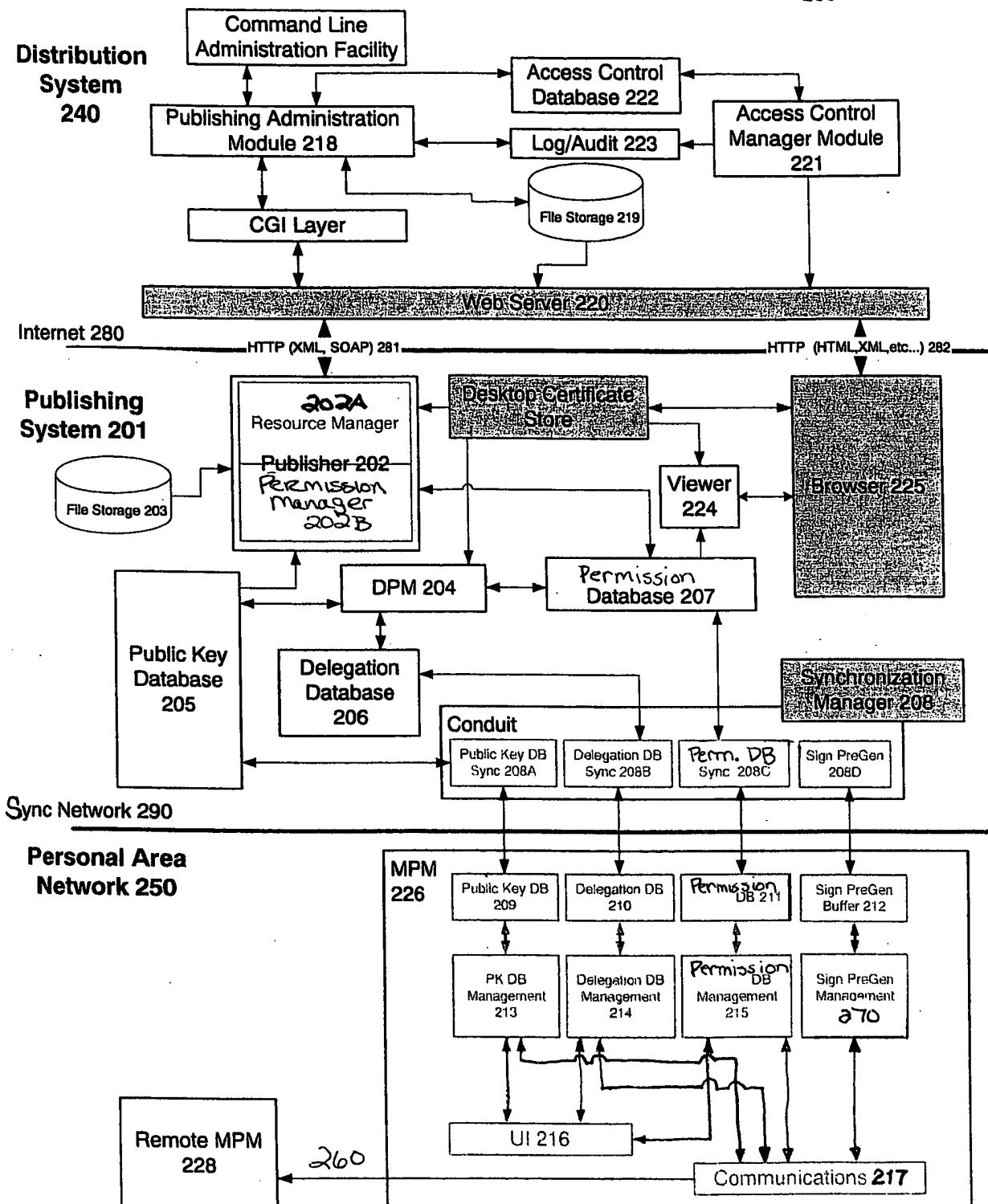


FIG. 2B

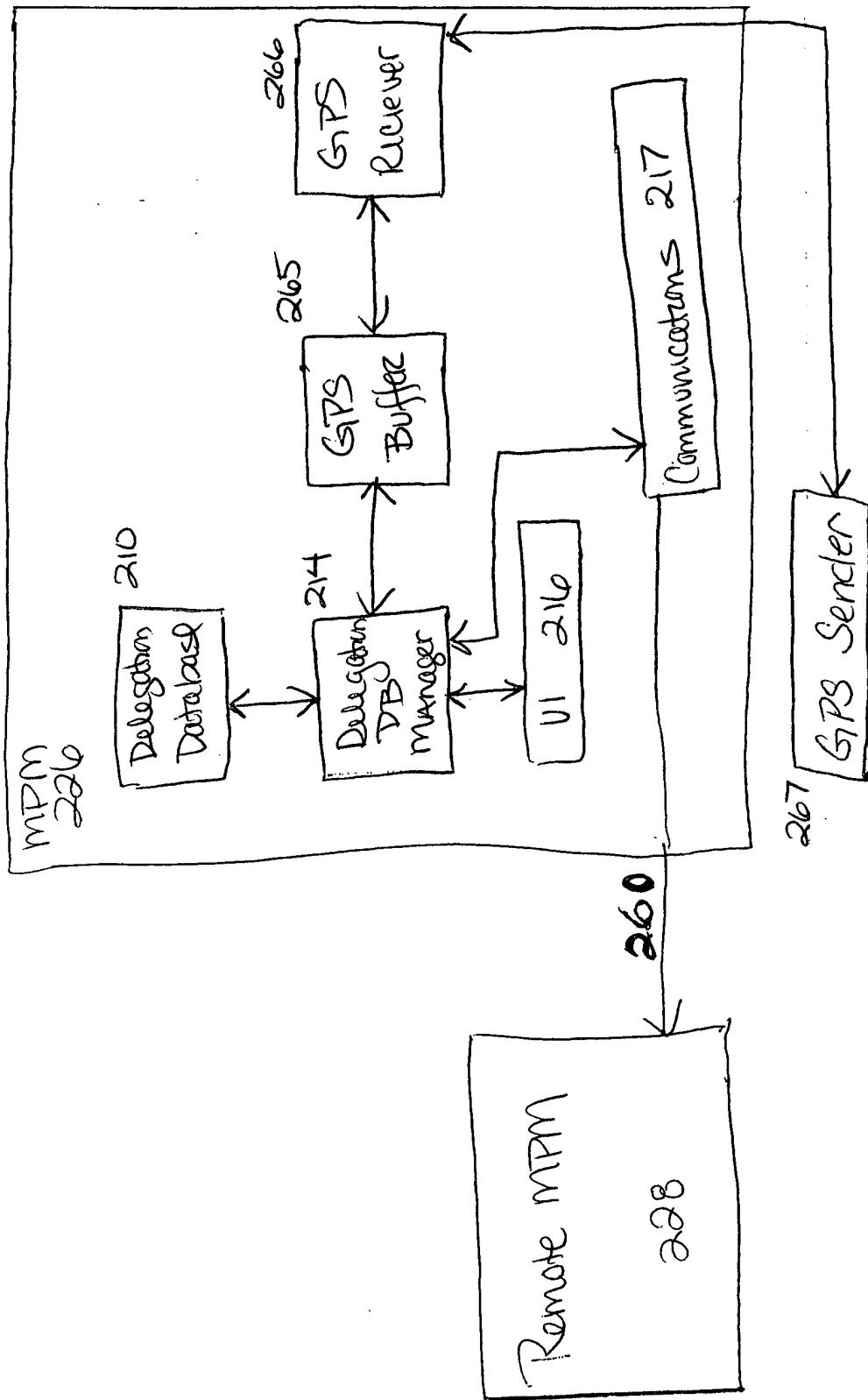
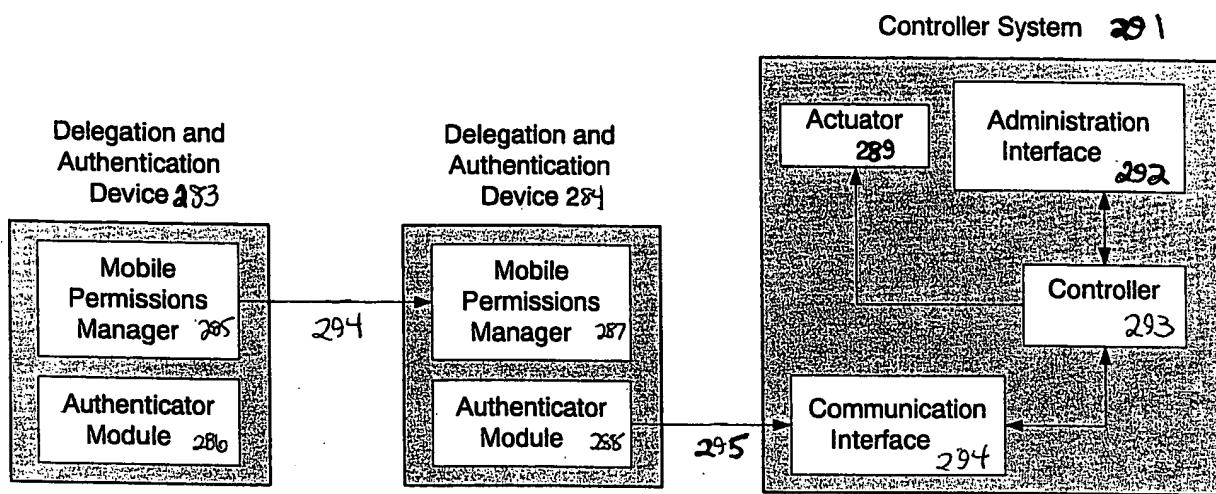


Fig. 2C



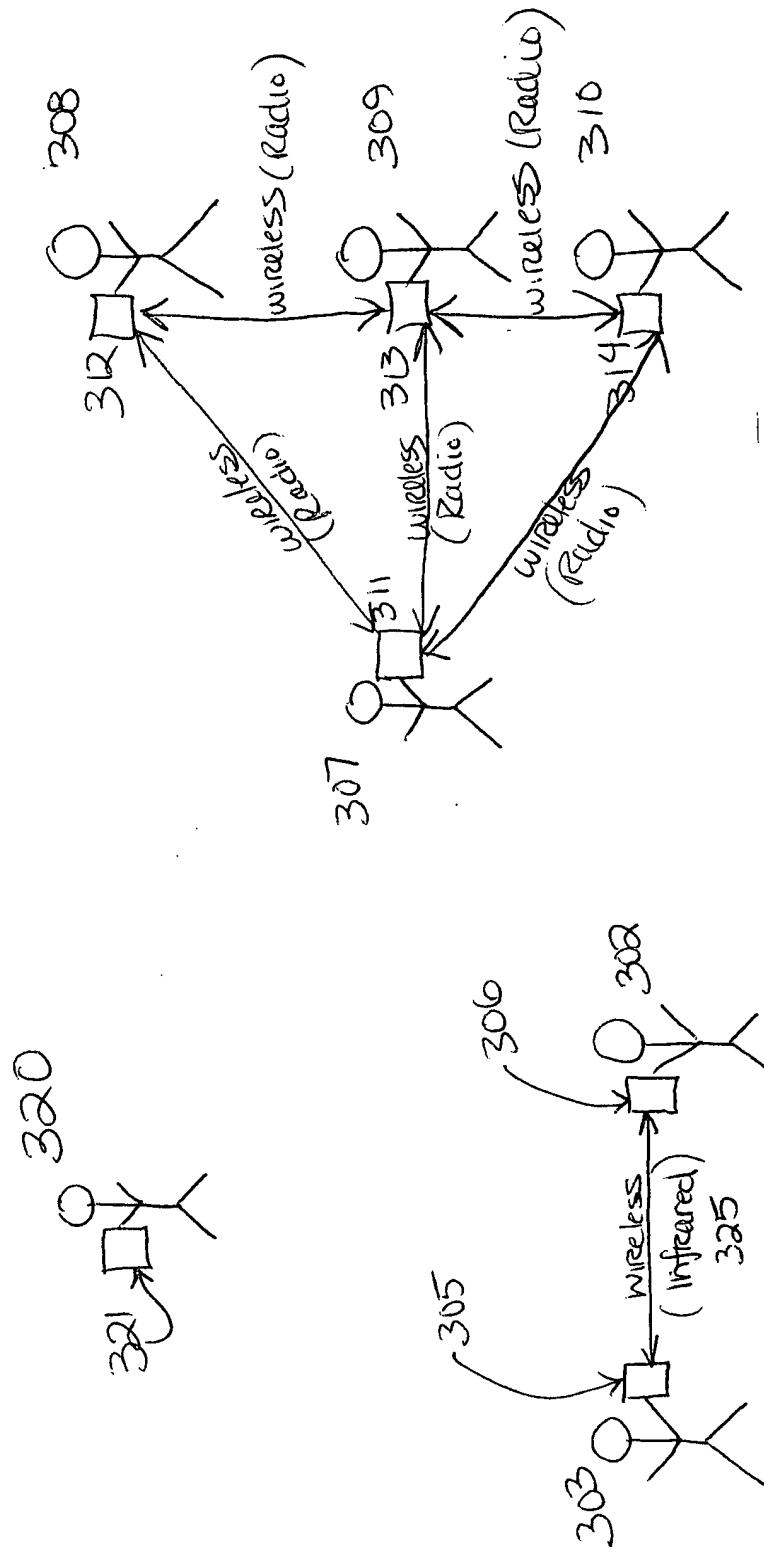


Fig. 3A

Fig. 3B

Fig. 4

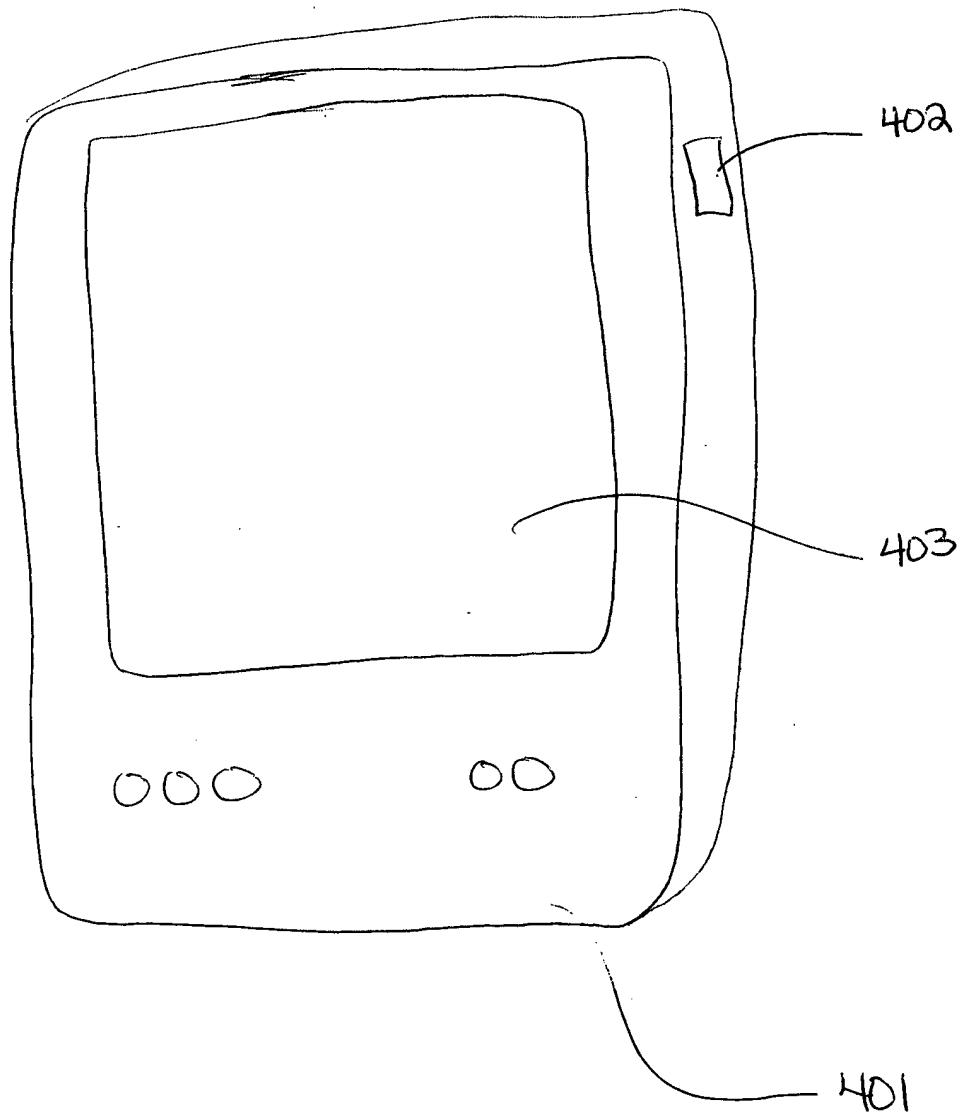


FIG. 5

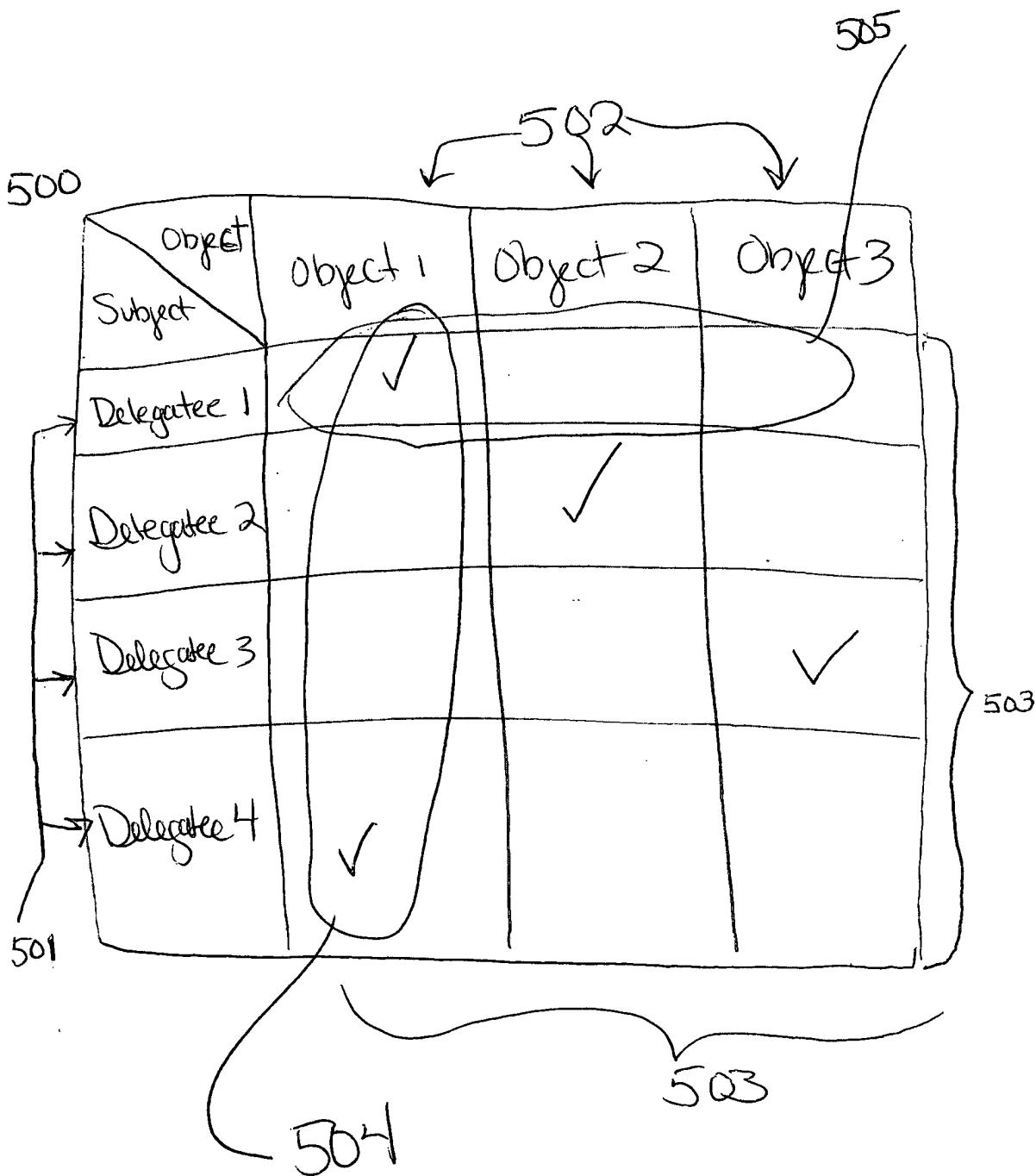
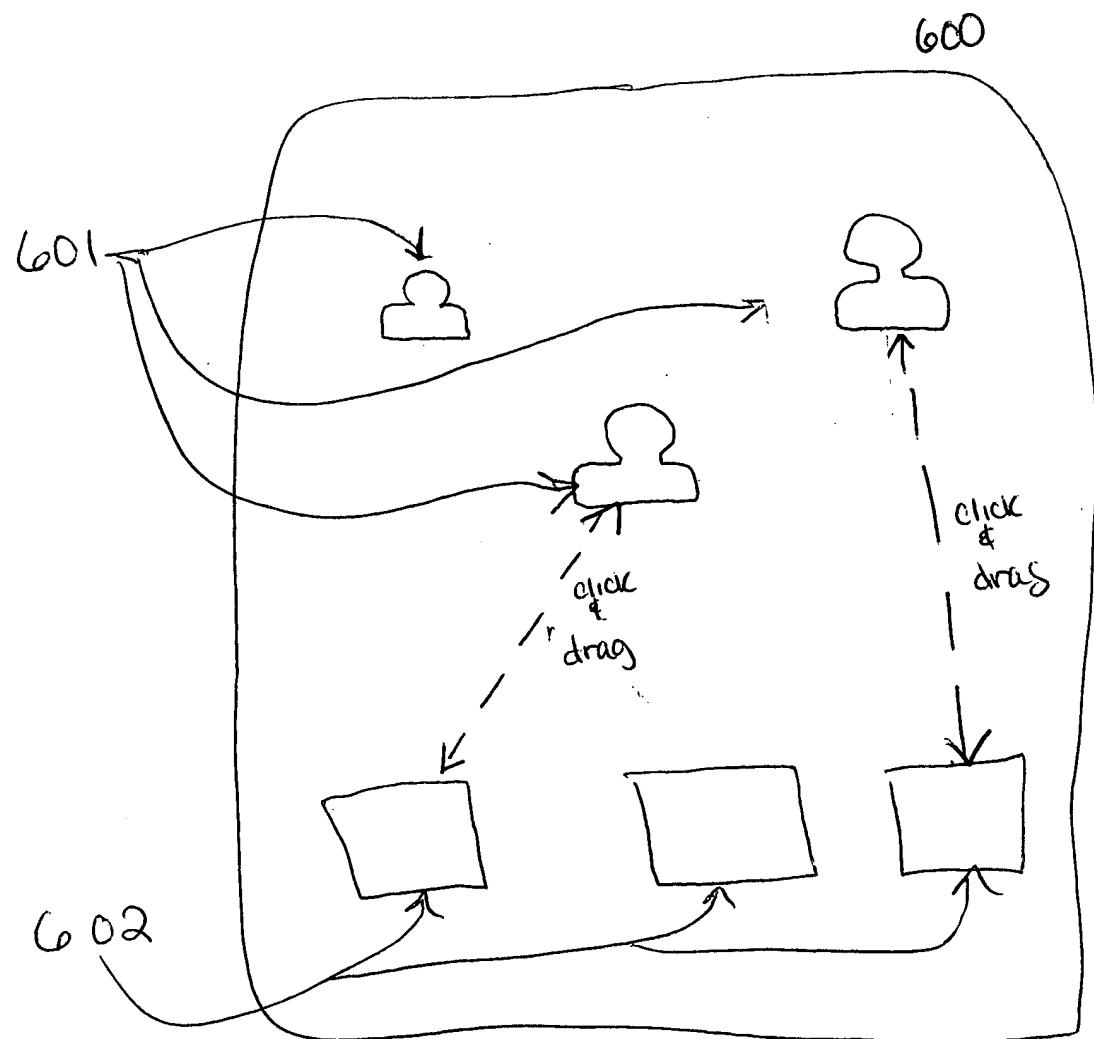


Fig. 6



Sending Permission as part of a header within an HTTP request.
(See <http://www.ietf.org/rfc/rfc2616.txt>).

```
GET /resource/ HTTP/1.1
Accept: image/gif, image/x-bitmap, image/jpeg, image/pjpeg,
application/vnd.ms-powerpoint, application/vnd.ms-excel,
application/msword, */
Accept-Language: en-us
Accept-Encoding: gzip, deflate
User-Agent: Mozilla/4.0 (compatible; MSIE 5.01; Windows NT 5.0)
Vchain: 50U+F61olMMJzRmZs6QNRhx1UE3artX4ax56AJdJxYR7dzyPNglg+cwEOzzjT+
v8ywbpuyugQvj1uZSSVDFkbje/C+NV8sLfp5d3eaTykzeP+siJx17wg3njzn2mLOnRKrXw
WuX6gW3gR76zVuIz0y1wS9bZzSiu+ImN/SaHRS3eqBFPL7Ye01Jzin4jH81046kLpiXB+O
C1oFRqsCmy5/JCrgvR01Rw2rolg6uXgK8xKdybfSXPkJx4w1A0d9GdGAqRycOGFoXtyzps
+bASvdt2UJMssCXAKTw5bi+sUzuTbeX2xPJwDsPvuevICZHVGwnqJemvVUrH1DdhnmZyZf
ZfTqeZ6sYZACvsAiCYghRB6fK9JJV/vj9Czf1vfyFPfYYH750NHjMdDr5qrVbSm4hK2GFZ
IVPnyxYHwTafKHhbU2aQ5KFZbBGmwiikfBRMVfsqz3hpKa5Pd+NZELIwQ4FWlWgrIzL+jw
Le1CfDk2V4SntsK+CFxBVGbU6dWpQYe2x0Bjat5yjbgYfXdz/vXfNxjHoAiUYwt4ZNwK0+
UG78+E1rtw2UoIUPuQoCpCXh9EMeaACc7gSKY2KfuY10FeCHZ00c16a4M82DUTe6JhrX6U
fR08r9QmxVnZu0/MW2vbWNS6rCUvsw78zWpChy3V11bxTyofETq9WofZ3u+bomL8WgchTd
/QPyHMAky37tXEhrjZxUkgJtI0oA12kVaTDERIwBnhQYM3mp48n8wCq8qH2JP78DSQwC
HMolJQPmjfaOxaCR5wE9mhJGHjtTOpxX3GkLN1NuZYq7tbxYznGNJ2VgwUPpCQppohcWmF
B17790cTc59zt9kV6A3MyeI/1ZCP5iW+VjPEa6h5CWhqHDT3mvDXSAJ8Wx66XiIEJmtzil
1Dpnt0phJpCDAPyM2X02bJGrPnimSbUsaELQWdMmtUyczy5TDI1pqjKMNU1yt1HdmN2jly
2+hHplkzgxxXKhi1I/JtC97X2GBbm7n1UnICG6sAbxq61BHX5sNs1TzwChjYhtFlMuCeZT
Umf1LBgGPgh6Uv3oyUVoasRmsKi1qbqweDdxXfZD3uFR/iJNLUzwnt3/PJwtPjpJHJ+Sia
/hkB9+a1M2XfSkMqaBpAE7/BfzRHs+09fDTL+kBFd00w0fvkTo9A1fVF99wiAJ0hZt7q+e
GWkPi5SRO+9/T710r7wNvC9NELRfsziq/v+8LM179yjjCm0chAZTv09iA8i28gQotzjdFX
1fE3vL0wmrP/61GSfqZhWc2Ho/m7FmqA9pJQVCRsVXXQOSWAZdPC3a75Jxyoa8hHDxg1uK
RaAF1xQboHeR1Z9GQHoi9ucQORhrbIu0S2OAfj99QjmszP3gQ64Pw+EakfS+lYQYbauY9
Z+8bRf+G8JnhRZIvcyu5y1RW74goguqs6BSf6NcuC3rBJhf30xn151/a8SraFtzUR4rv+e
qjQyE=
Connection: Keep-Alive
Host: www.websitexyz.com
HTTP/1.0 200 OK
Content-Length: 16485
Content-Type: text/html
<html><head><title>WebsiteXYZ</title>
...
```

FIG. 7 -

Sending the permission as part of a "cookie" within an HTTP request
(see <http://www.ietf.org/rfc/rfc2616.txt> and <http://www.ietf.org/rfc/rfc2109.txt>).

```
GET /resource/ HTTP/1.1
Accept: image/gif, image/x-bitmap, image/jpeg, image/pjpeg,
application/vnd.ms-powerpoint, application/vnd.ms-excel,
application/msword, */
Accept-Language: en-us
Accept-Encoding: gzip, deflate
User-Agent: Mozilla/4.0 (compatible; MSIE 5.01; Windows NT 5.0)
Cookie: Vchain=50U+F61o1MMJzRmZs6QNRhx1UE3artX4ax56AJdJxYR7dzyPNglg+cw
EOzzjT+v8ywbpvyuugQvj1uZSSVdfkbje/C+NV8sLfp5d3eaTykzeP+siJx17wg3njzn2mL
OnRKrXwWuX6gW3gR76zVuIz0y1wS9bZzSiu+ImN/SaHRS3eqBFPL7Ye01Jzin4jH81046k
LpiXB+OCloFRqsCmy5/JCrgvR01Rw2rolg6uXgK8xKdybfSXPkJx4w1A0d9GdGAqRycOGF
oXtyzps+bASvdt2UJMssCXAKTw5bi+sUzuTbeX2xPJwDsPvuevICZHVGwnqJemvVUrH1DD
hnMzYzFZfTqeZ6sYZACvsAiCYghRB6fK9JJV/vj9CzF1vfyFPfYYH75ONHjMdDr5qrVbSm
4hK2GFZ1VPnyxYHwTafKHhbU2aQ5KFZbBGmwiikfBRMVfsqz3hpKa5Pd+NZELIwQ4FWlWg
rIzL+jwLe1CfDk2V4SntsK+CFxBVGBu6dWpQYe2x0Bjat5yjbgYfXdz/vXfNxjHoAiUYwt
4ZNwK0+UG78+E1rtw2UoIUPuQoCpCXh9EMeaACc7gSKY2KfuY10FeCHZ00c16a4M82Dute
6JhrX6UfR08r9QmxVnZu0/MW2vbWNS6rCuvsw78zWpChy3V1lbxTyofETq9WofZ3u+bomL
8WgchTd/QPyHmaky37tXEhrjZxUkgJtI0oA12kVaTDERIwBnhQYM3mp48n8wCq8qH2JP7
8DSOQwCHMolJQPmjfaOxaCR5wE9mhJGHjtTOpXx3GkLN1NuZYq7t bxYznGNJ2VgwUPpCQp
pohcWmFB17790cTc59zt9kV6A3MyeI/1ZCP5iW+VjPEa6h5CWhqHDT3mvDXSAJ8Wx66XiI
EJmtzillDpnt0phJpCDApYm2X02bJGrPnimSbUsaELQWdMmtUyczy5TD1lpqjKMNULyt1h
dmN2jly2+hHplkzgxxXKh1I/JtC97X2GBbm7n1UniCG6sAbxq61BHX5sNs1TzWChjYhtF
1MuCeZTUmflLBgGPgh6Uv3oyUVoasRmsKi6qbqweDdxXfZD3uFR/iJNLUzwnt3/PJwtPjp
JHJ+SIA/hkB9+a1MZXfSkMqaBpAE7/BfzRhs+09fDTL+kBFd00w0fvkTo9AlfVF99wiAJ0
hZt7q+eGWkPi5SRO+9/T710r7wNvC9NELRfsziq/v+8LM179yjjCm0chAZTv09iA8i28gQ
otzjdFX1fE3vL0wmrP/61GSfqZhWc2Ho/m7FmqA9pJQVCRsVXXQOSWAZdPC3a75Jxyoa8h
HDxg1uKRaAF1xQboHeR1Z9GQHoi a9ucQORhrbIu0S20Afj99QjmszP3gQ64Pw+EakfS+lY
QYbauY9Z+8bRf+G8JnhRZIvcyu5y1RW74goguqs6BSf6NcuC3rBJhf30xn151/a8SraFtz
UR4rv+eqjQyE=
Connection: Keep-Alive
Host: www.websitexyz.com
HTTP/1.0 200 OK
Content-Length: 16485
Content-Type: text/html
<html><head><title>WebsiteXYZ</title>
...
```

FIG. 8

Sending the permission as part of a URL

[http://www.websitexyz.com/resource/?Vchain=50U+F61o1MMJzRmZs6QNRhx1UE3a...
rtX4ax56AJdJxYR7dzyPNg1g+cwEOzzjT+v8ywbpyuugQvj1uZSSVDfkaje/C+NV8sLfp5d
3eaTykzeP+siJx17wg3njzn2mLOnRKrXwWuX6gW3gR76zVuIz0y1wS9bZzSiu+ImN/SaHRS
3eqBFPL7Ye01Jzin4jH81046kLpiXB+OC1oFRqsCmy5/JCrgvR01Rw2rolg6uXgK8xKdybf
SXPkJx4w1A0d9GdGAqRycOGFoXtyzpS+bASvdt2UJMssCXAKTw5bi+sUzuTbeX2xPJwDsPv
uevICZHVGwnqJemvVUrH1DDhnMzYzFZfTqeZ6sYAZCvsAiCYghRB6fK9JJV/vj9CzF1vfyF
PfYYH75ONHjMdDr5qrVbSm4hK2GFZIVPnyxYHwTafKHhbU2aQ5KFZbBGMwIikfBRMVfsqz3
hpKa5Pd+NZELIwQ4FWlWgrIzL+jwLe1CfDk2V4SntsK+CFxBVGBu6dWpQYe2x0Bjat5yjbg
YfXdz/vXfNxjHoAiUYwt4ZNwK0+UG78+E1rtw2UoIUPuQoCpCXh9EMeaACc7gSKY2KfuY10
FeCHZ00c16a4M82DUtE6JhrX6UF08r9QmxVnZu0/MW2vbWNS6rCuVsw78zWpChy3V1lbxT
yofETq9WofZ3u+b0mL8WgchTd/QPyHMaKy37tXEhrjZxUkgJtI0oA12kVaTDERIwBnhQYM3
mzp48n8wCq8qH2JP78DSOQwCHM01JQPmjfa0xaCR5wE9mhJGHjtTOpXx3GkLN1NuZYq7tbx
YznGNJ2VgwUPpCQppohcWmFB17790cTc59zt9kV6A3MyeI/1ZCP5iW+VjPEa6h5CWhqHDT3
mvDXSAJ8Wx66XiIEJmtzillDpnt0phJpCDAPyM2X02bJGrPnimSbUsaELQWdMmtUyczy5TD
IlpqjKMNUlyt1HdmN2j1y2+hHplkzgxxXKhi1I/Jtc97X2GBbm7nlUnICG6sAbxq61BHX5s
Ns1TzWChjYhtF1MuCeTUmf1LBgGPgh6Uv3oyUvoasRmsKi6qbqweDdxXfZD3uFR/iJNLUz
wnt3/PJwtPJPJHJ+SIa/hkB9+almZXfSkMqaBpAE7/BfzRHs+09fDTL+kBFdO0w0fvkTo9A
1fVF99wiAJ0hZt7q+eGWkPi5SRO+9/T710r7wNvC9NELRfsziq/v+8LM179yjjCm0chAZTv
09iA8i28gQotzjdFX1fE3vL0wmrP/61GSfqZhWc2Ho/m7FmqA9pJQVCRsVXXQOSWAZdPC3a
75Jxyoa8hHDxg1uKRaAF1xQboHeR1Z9GQHoi9ucQORhrbIu0S20Afj99QjmszP3gQ64Pw+
EakfS+1YQYbauY9Z+8bRf+G8JnhRZIvcyu5y1RW74goguqs6BSf6NcuC3rBJhf30xn151/a
8SraFtzUR4rv+eqjQyE=](http://www.websitexyz.com/resource/?Vchain=50U+F61o1MMJzRmZs6QNRhx1UE3a...)

FIG. 9

Fig. 10

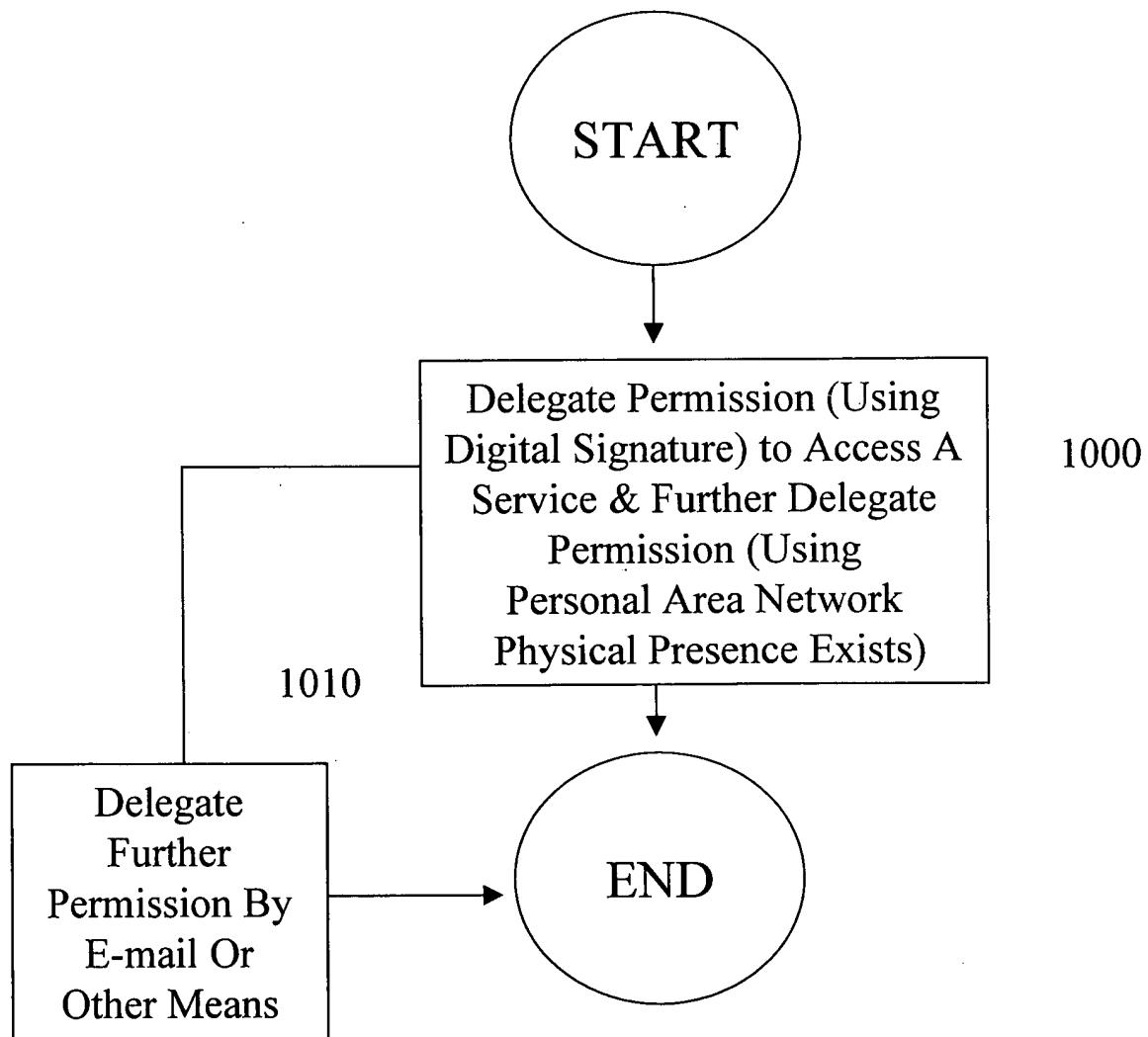


Fig. 11

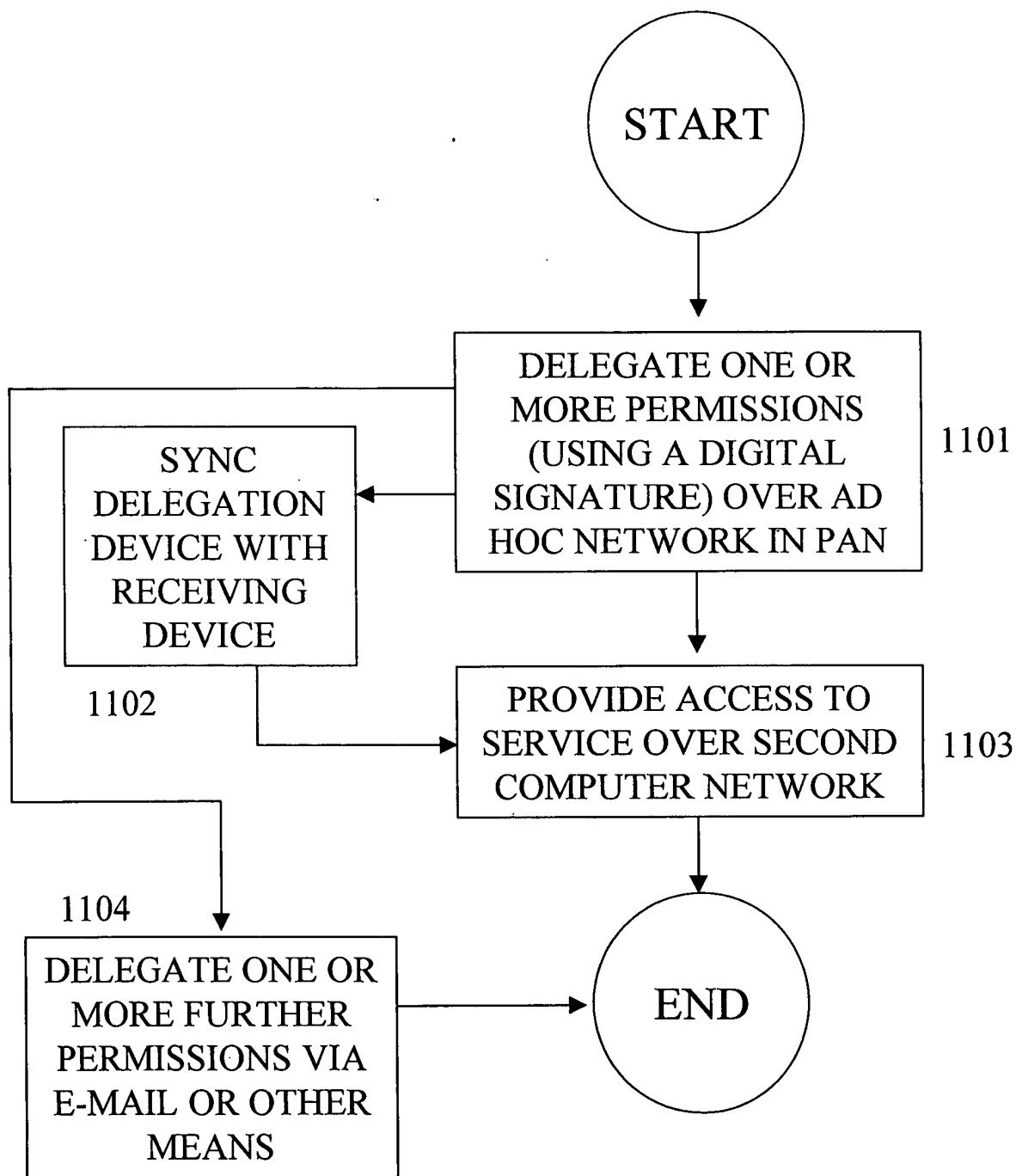


Fig. 12

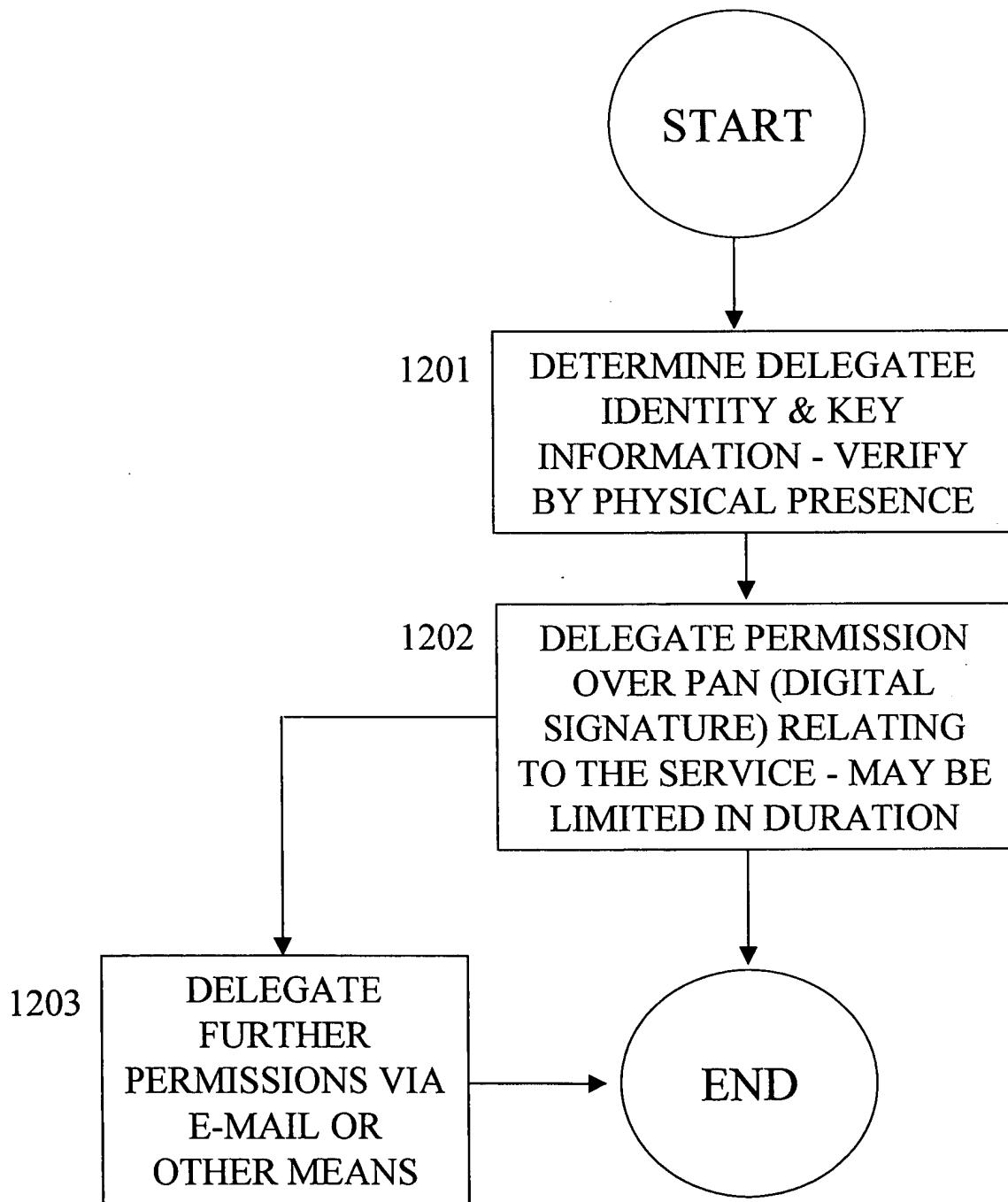


Fig. 13

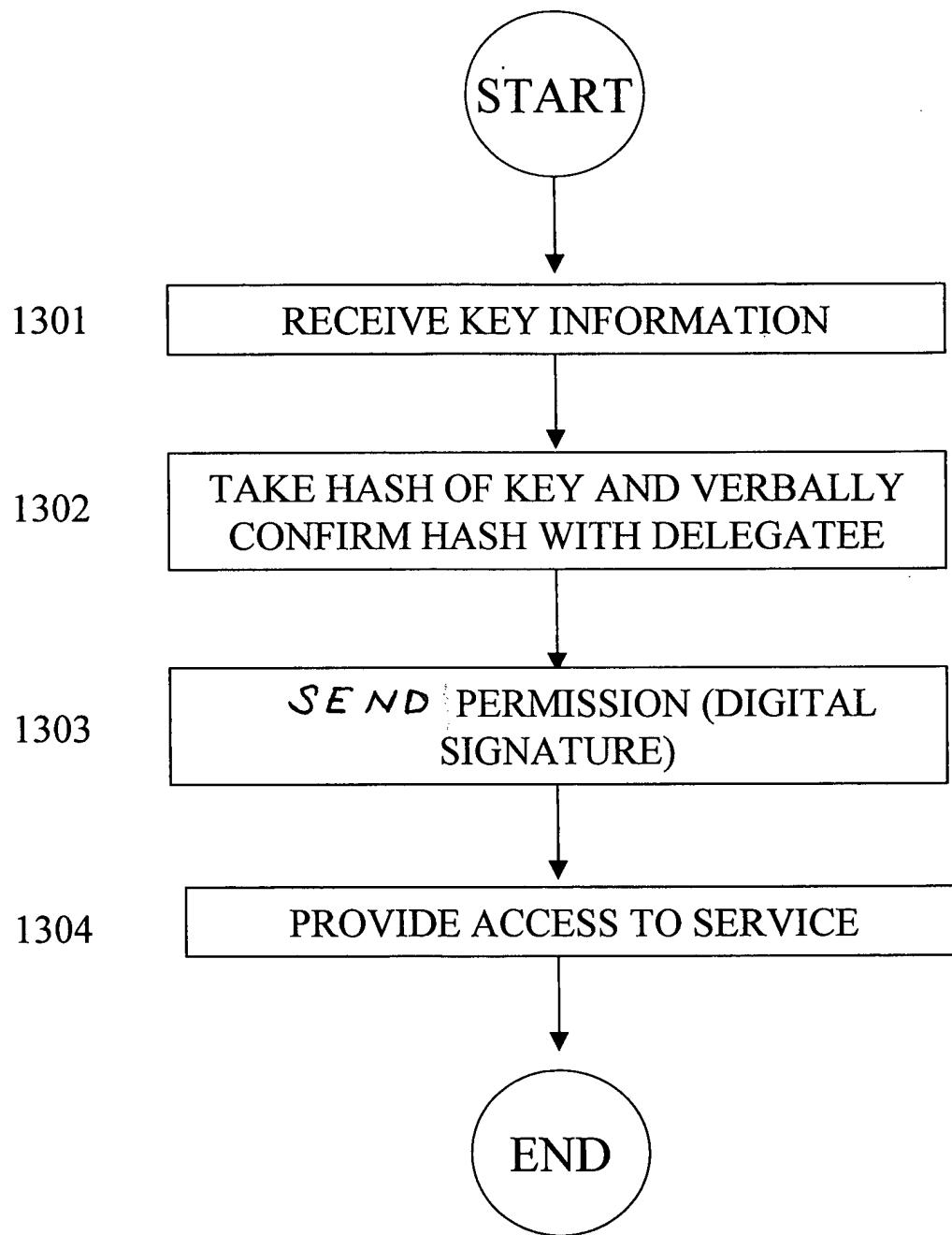


Fig. 14

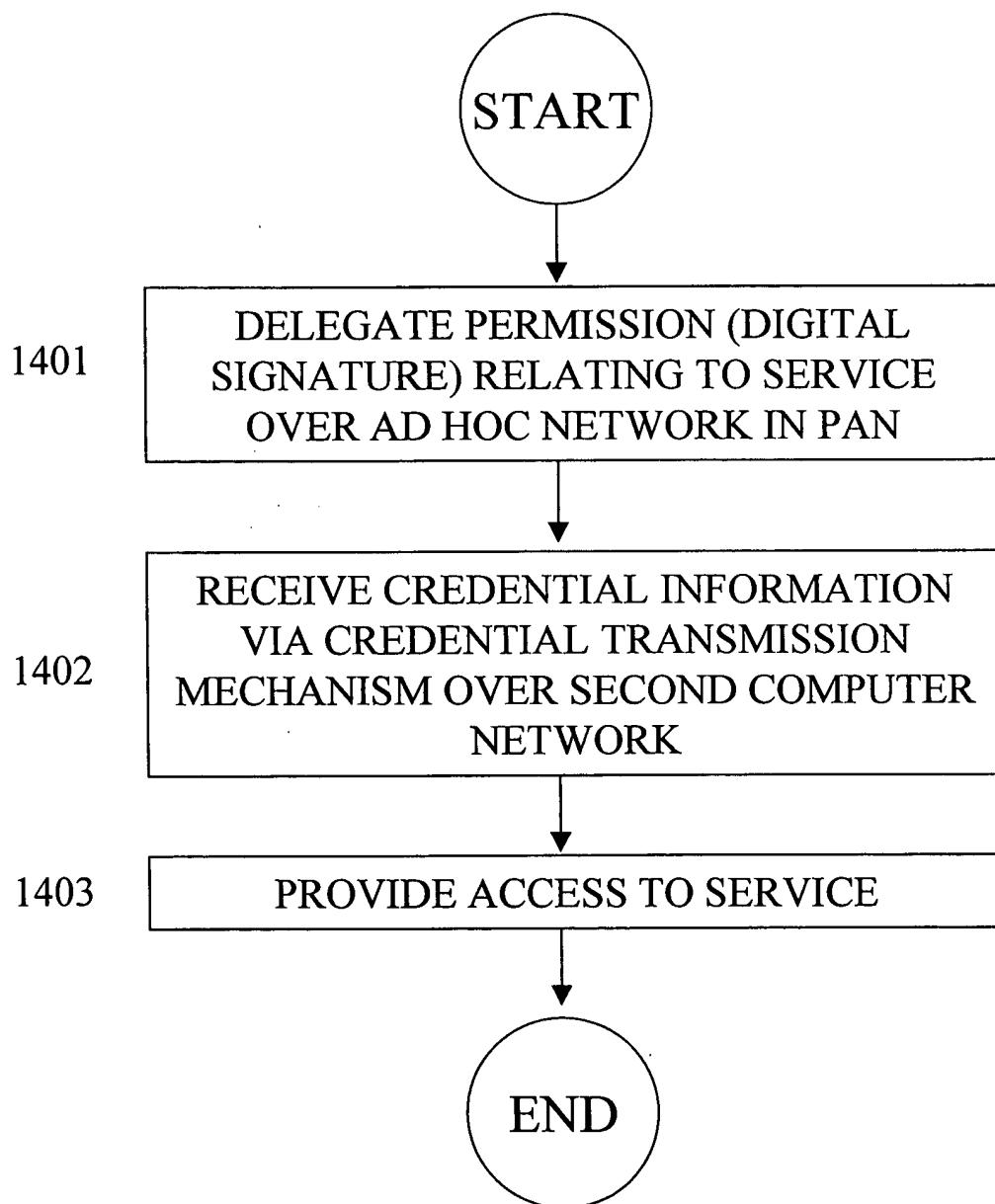


Fig. 15

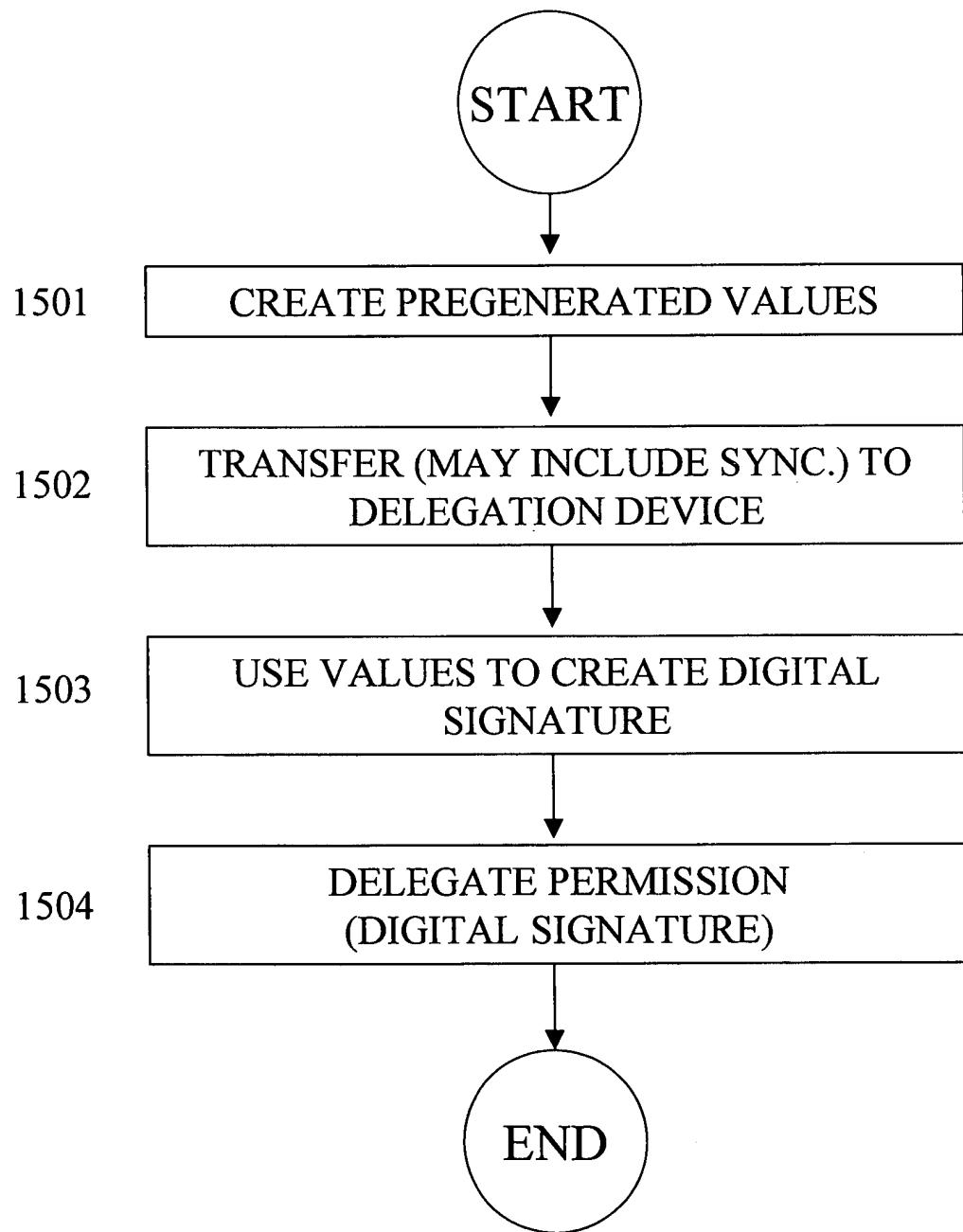


Fig. 16

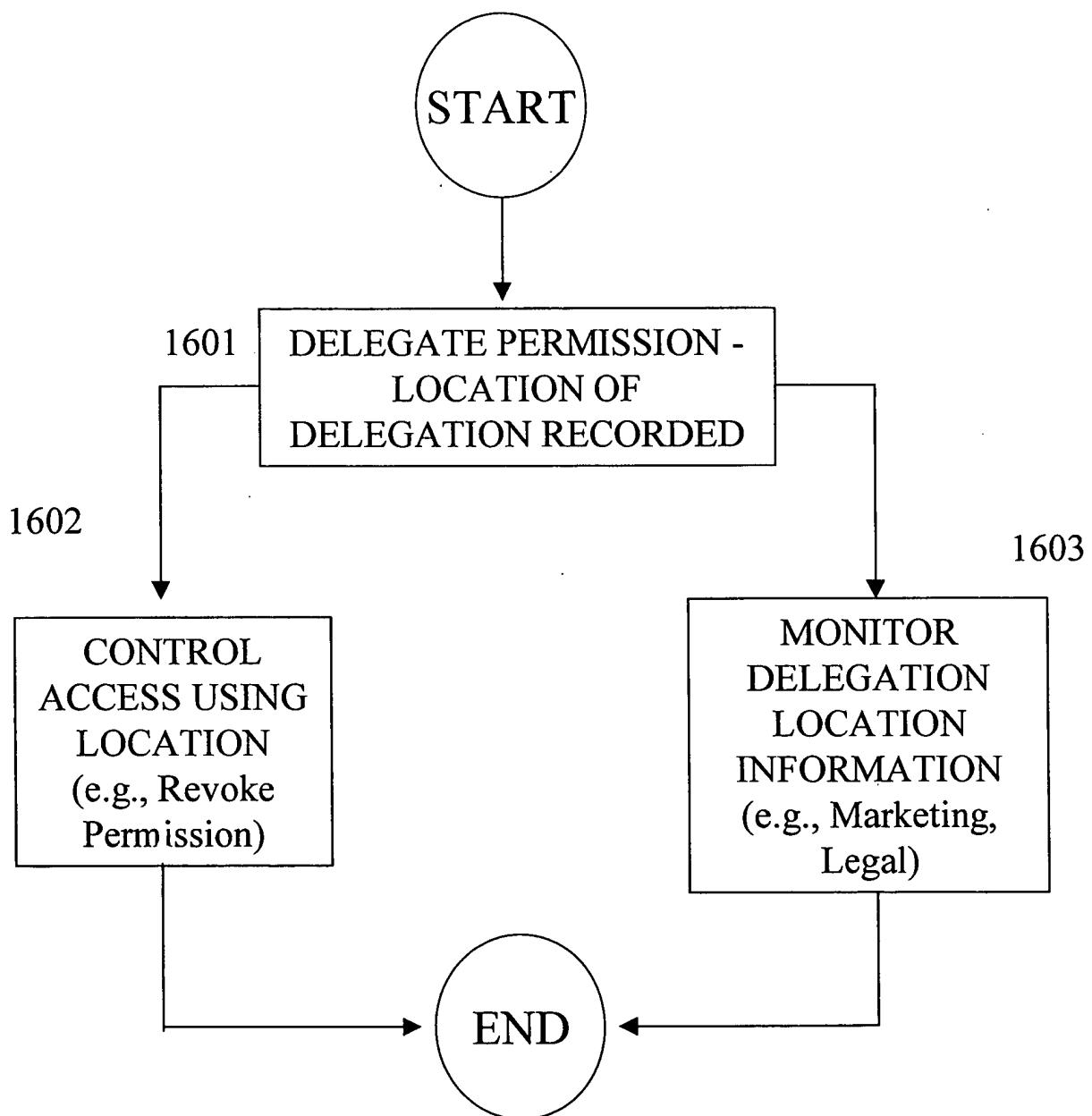


Fig. 17

